

Grant Round Application for LRC-LXV (65)

TECHNICAL ADVISOR COMMENTS LRC-LXV (65) – B

“Long-term Assessment of Selective Catalytic Reduction Reactor Slip Stream Performance for Utilities Burning Lignite Coal”

Submitted by: Saskatchewan Power Corporation (SaskPower)

Request for: \$200,000; Total Project Costs: \$1,050,000

Project Manager: David Smith, Ph.D; Project Duration: 33 Months

Description of the Project: SaskPower proposes to conduct testing of selective catalytic reduction (SCR) technology to remove nitrogen oxides (NOx) from the flue gas of SaskPower’s Poplar River Power Station Unit 1, which burns Fort Union Lignite.

Technical Peer Reviewers’ Key Comments:

All Reviewers

The objectives were rated as “very clear”; project rated as “most likely achievable”; project will provide “very significant scientific contribution”; project team has “better than average” awareness and background regarding the subject matter; and the budget is of “high” to “very high” value;

Reviewer 08-16

Based on a SCR research project conducted at the Coyote Station, problems associated with lignite units compared to other coal ranks include: more severe catalyst plugging and deactivation, shorter catalyst operating life, and stickier, potentially more abrasive ashes. The proposed SaskPower test program will address the above issues in a 33-month program employing Babcock & Wilcox SCR technical expertise that, hopefully, will design an SCR reactor and catalysts that would be free of fouling and catalyst deactivation.

Recommendation: Fund

Reviewer 08-17

This is an excellent proposal for a project that will collect important data on whether or not a 1000 scfm SCR slipstream unit will operate satisfactorily for 16,000 hours on flue gas extracted from a boiler at SaskPower’s Poplar River Power Plant. A fall-back plan should be developed as part of this project that could be implemented quickly if satisfactory operation cannot be demonstrated. **Recommendation: Fund**

Reviewer 08-18

The project has very high merits and the chances of success are extremely high. It is quite conceivable more stringent NOx regulations will be enacted in the future as a means of addressing PM_{2.5} emissions. While the research will be conducted in Canada, the benefits to producers and users of North Dakota lignite are outstanding. B&W is a world-wide leader in developing and applying SCR technologies to fossil-fired power plants, greatly enhancing the likelihood of success for this project. **Recommendation: Fund**

Technical Advisor’s Recommendation: Fund (Demonstration project funds)

The demonstration of cost-effective, NOx emissions reduction technologies is critical to the future of the lignite industry. The NOx control technologies that have been installed to date in Fort Union pulverized coal electrical generating stations will not be adequate to address future environmental requirements.

Conflict of Interest: SaskPower